CURRENT LITERATURE
IN
AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ENGINEERING

Vol. 3, No.2 WASHINGTON, D. C. September, 1933.

Agricultural Engineering.

Agricultural engineering and the economic conference: Editorial. Implement and Machinery Review. v.59, no.699. p.237.

Agricultural mechanics. By Robert H. Smith. Philadelphia, J.B.Lippincott company, c1933. 357p.

Agriculture.

Adjusting farm rentals to fluctuating values. By W.L.Cavert. 1933. 4p. Minnesota. University. Agricultural Extension division. Circular no.42.

Agriculture's new deal. By C.S? Burton. Magazine of Wall Street. v.52, no.8. August 5, 1933. p.370-372,402. Price fixing. Crop destruction. Farm bounties. Cotton and grain markets. The outlook.

Balanced harvest. By Henry A. Wallace. 1933. 12p. U.S. Department of Agriculture. Agricultural Adjustment Administration. Indicates what the Farm Act offers the American wheat grower.

Challenge of facts. By Henry A. Wallace. Extension Service Review. v.4, no.4. July, 1933. p.56-57. Our present situation calls for new sort of pioneering, new adjustment, carefully planned and carried forward not recklessly, not as contending individualists, but compactly, in common actions, as one.

Cost accounts on New York farms. By J.F.Harriott and L.M.Vaughan. 1933. 67p. Cornell University. Agricultural Experiment Station. Bulletin no.554.

Domestic allotment plans for the relief of agriculture: Selected references. Compiled by Louise O. Bercaw. 1933. 48p. mimeographed. U.S. Bureau of Agricultural Economics. Agricultural Economics bibliography no.41.

Help your farmers plan their fields. Building Material Digest. v.2, no.8. August, 1933. p.16-17. Nothing wastes more time, money and labor than working farm with fields of different size and shape - some large, some small, some square, some rectangular or irregular. Small fields require too much turning at ends when plowing and cultivating. Too many fields waste land on fence rows and division lines. Too few fields prevent proper and profitable crop rotation.

Agriculture. (Cont'd.)

Lower interest rates for farmers. Farmer and Farm, Stock and Home. v.51, no.11. May 27, 1933. p.3,9. Designed to ease and stabilize farm mortgage situation by : (1) Reducing interest rates on Federal Land Bank loans. (2) Temporarily waiving requirement of payment on principal. (3) Continuance of extensions on Federal Land Bank loands where desirable and necessary. (4) Providing Federal Land Bank bonds for exchange or purchase for first farm mortgages. (5) Providing funds for refinancing farmers' debts. (6) Sharply curtailing volume of foreclosures. (7) Refinancing irrigation, drainage and levee districts, where their outstanding securities have depreciated, benefits to be prorated to farm owners in such districts. (8) Providing loans to Joint Stock Land Banks to facilitate their orderly liquidation. How to secure direct loans.

Measures taken in foreign countries to relieve agricultural indebtedness. Compiled by A.M. Hannay, May Coult and Lillian Crans. 1933. 57p. mimeographed. U.S. Bureau of Agricultural Economics. Agricultural Economics bibliography no.42.

New aids to farming. Engineering Progress. v.14, no.8. August, 1933. p.144-151. Description and illustrations of farm cart equipped with balloon tires; balloon tire on wheelbarrow; low-platform farm cart with creeper chains.

Part-time farming: Brief list of recent references. Compiled by Esther M. Colvin. 1933. 20p. mimeographed. U.S. Bureau of Agricultural Economics. Agricultural Economics bibliography no.43.

Philosophy behind the farm plan. By Roxford G. Tugwell. Montana Farmer. v.20, no.24. August 15, 1933. p.5,11. Old planless method. Organizing allotment program. How it works with wheat. Mapping out a land policy. Good land for bad.

Planned production means more for your wheat. 1933. 4p. U.S. Department of Agriculture. Agricultural Adjustment Administration. Wheat situation and adjustment plan in brief, with estimate work sheet on which to estimate what adjustment payment will mean to you.

Planning farm organizations for the northeast cut-over section of Minnesota. By George A. Pond and C.W.Crickman. 1933. 104p. Minnesota. Agricultural Experiment station. Bulletin no,295.

Plea for practical science: Editorial. Farmer and Farm, Stock and Home. v.51, no.14. July 8, 1933. p.8. We have made much progress, in opinion of Secretary Wallace, in perfecting show-ring standards of quality in livestock and cereals, but many of these standards are based on attractive appearance rather than on points of practical utility.

Agriculture. (Cont'd.)

Policies for agriculture. By Henry Morgenthau, Jr. American Agriculturist. v.130, no.10. May 13, 1933. p.3,8-9,15. Outlining theories on ways by which government can help agriculture, and illustrating those methods by farm legislation which New York has passed in recent years.

Possibilities of part-time farming. By H.R.Cox. 1933. 16p. New Jersey. Agricultural Experiment station. Extension Service. Extension bulletin no.107.

Production-control measures under adjustment act are offered to farmers. By Chester C. Davis. Extension Service Review. v.4, no.4. July, 1933. p.49-50. Tobacco. Milk. Wheat. Processing tax. Cotton. Local committees.

Secretary Wallace explains the "New Deal". By Berry H. Akers. Farmer and Farm, Stock and Home. v.51, no.14. July 8, 1933. p.5,16. How the new Farm Adjustment Act will work.

Some thoughts on the Agricultural Experiment Station. By C.G. Williams. Science. v.77, no.1989. February 10, 1933. p.155-158.

Using farm lands to provide unemployment relief. By Noble Clark. 1933. 6p. mimeographed. Wisconsin. Agricultural Experiment Station.

What chance has the city man on a Wisconsin farm? By Noble Clark. 1933. 16p. mimeographed. University of Wisconsin. College of Agriculture. Extension Service.

Air Conditioning.

Air conditioning equipment for residences and limited spaces. American Architect. v.143, no.2817. May, 1933. p.89-94. Objectives of air conditioning. Engineering considerations involved. Basic types of equipment employed. Methods of producing air motion. Methods of dehumidifying air. Methods of cooling. Combination devices. Automatic controls. Effect of air conditioning on building design.

Chart for finding mean specific heat of air and water vapor. By James W. May. Heating, Piping and Air Conditioning. v.5, no.9. September, 1933. p.475-476.

Cooling conclusions. By Samuel R. Lewis. Domestic Engineering. v.142, no.2. August, 1933. p.58-63. Table shows night air demand. Figuring cost by degree days. Cost for cooling season.

Air Conditioning. (Cont'd.)

Measurement of the flow of air through registers and grilles. By L.E.Davies. Heating, Piping and Air Conditioning. v.5, no.9. September, 1933. p.486-495. Results of research conducted at Armour Institute of Technology of Chicago, in cooperation with A.S.H.V.E. Research Laboratory and Ventilating Contractors Employer's Association of Chicago.

Residence cooling problem. By A.C.Willard and A.P.Kratz. Refrigerating Engineering. v.26, no.2. August, 1933. p.73-81, 101. Important aspects developed by tests in Research residence at University of Illinois.

Science of air conditioning. Ice and Cold Storage. v.36, no.425. August, 1933. p.138-140. Cooling and dehumidifying: heat activated systems.

Science of air conditioning. Ice and Cold Storage. v.36, no. 424. July, 1933. p.123-124,118. Filters and air washers.

Summer cooling in research residence at University of Illinois. Ice and Refrigeration. v.84, no.6. June, 1933. p.381-383. Results of cooperative research sponsored by A.S.H.V.E. Research Laboratory in cooperation with National Warm Air Heating Association, National Association of Ice Industries, Detroit Edison Co., and others, conducted at University of Illinois.

Summer cooling of a Detroit residence. Ice and Refrigeration. v.84, no.6. June, 1933. p.383-384. Results obtained from study of residence cooling system under normal conditions of occupancy. Study made by J.H.Walker and G.B.Helmrich.

Temperature control in the home: Editorial. Aerologist. v.9, no.9. September, 1933. p.3-4,9.

Alcohol.

Alcohol yield from wood increased by new process. Oil, Paint and Drug Reporter. v.124, no.3. July 17, 1933. p.40. Scholler method consists in sort of percolation under pressure with very dilute sulphuric acid. Water containing 0.1 per cent of sulphuric acid at temperature of 170° C., is forced comparatively rapidly through wooden material under pressure of about eight atmospheres. Solution as it percolates through wood carries with it any sugar formed. Solution is cooled quickly, and is subsequently fermented and worked to alcohol. By carefully regulating reaction conditions it is claimed output of 25 liters of absolute alcohol per 100 kilograms of dry wood can be attained.

Alcohol. (Cont'd.)

Production of absolute alcohol by the Hiag process. International Sugar Journal. v.35, no.415. July, 1933. p.266-268. Process is described which utilizes in practical and convenient manner dehydrating action of certain salts. It is claimed to overcome objections to use of solid salts, regeneration of which demands somewhat complicated manipulation. It is being successfully operated on large scale, and merits attention of technologists as practical and economical means of producing anhydrous alcohol.

Associations.

A.S.A.E. appointments for 1933-34. Agricultural Engineering. v.14, no.8. August, 1933. p.227.

Building Construction.

Stone made from waste used for building. Popular Mechanics. v.59, no.6. June, 1933. p.838. Synthetic stone is being made from finely ground shale and pulverized limestone, but process can be adapted to marble, granite or slate deposits. For durability, attractiveness and economy, man-made stone compares favorably with its natural rivals. Pulverized material, thoroughly mixed in proper proportion, is compressed in polished steel forms under pressure of 2,500 pounds to square inch. After drying mold is steamed to produce necessary chemical action.

Tests demonstrate value of X-braced H-frames. Electrical World. v.102, no.10. September 2, 1933. p.304-306.

Use of sucrose in sand-lime brick. By W.A.Hamer, Gerald J.

Cotton.

Cotton's colorful cycle. By Curtis Vinson. Acco Press. v.11, no.9. September, 1933. p.6-8. First of series of three articles following path of cotton from field to cloth.

Ginning practices and methods that improve the quality of cotton. By S. H. McCrory. Cotton and Cotton Oil News. v.34, no. 34. August 19, 1933. p.3-4. Four things for cotton farmers to remember this fall are: First, if you pick cotton while it is "green" or wet, dry it before it is ginned, or take it to gin that has mechanical drier. Second, keep trash out of cotton. Third, don't market dirty cotton if you can help it. Fourth and last, insist on ginning practices and methods that produce equality cotton.

New rate schedule for ginning. For Orville Adams. Cotton and Cotton Oil News. v.34, no.26. July 1, 1933. p.3-4. As aid in making effective sound basis of rates, Mr. Adams advocates that every ginner determine his cost, make up accurate schedule of this cost, and make figures public to farmer patrons by having figures written in box-car letters and placed on large poster at gin.

Cotton.

Uses for cotton: Selected references in the English language. Compiled by Mildred C. Benton. 1932. 43 p. Mimeographed. U.S. Bureau of Agricultural Economics. Agricultural Economics bibliography no.44.

Why cotton is still king. Popular Mechanics. v.60, no.1. July, 1933. p.66-69,122-A, 124-A.

Culverts.

Place and merits of corrugated metal culverts. Engineering an Contracting Record. v.47, no.27. July 5, 1933. p.656-657 Proper size of culverts; design; merits of corrugated pipe; construction methods; serviceability of metal culverts.

Dairy Equipment.

Care of milking machines. By E.G.Hastings and George Werner. Jersey Bulletin and Dairy World. v.52, no.31. August 2, 1933. p.963,970-971. Conclusion.

Dams.

Castlewood dam failure floods Denver. Engineering News Record. v.111, no.6. August 10, 1933. p.174-176. Old structure of combined rockfill and masonry type is over-topped and half of it washed out by cloudburst flood, releasing flow of 16,000 sec.-ft. into the 10,000 sec.-ft. Cherry Creek channel running through Denver 35 miles north of the dam.

Construction and design of arch dams. Canadian Engineer. v.65, no.5. August 1, 1933. p.9-10,12. Results of engineering foundations' investigations point way to economics in construction and extend scientific knowledge.

Data on Castlewood dam failure and flood. By John E. Field. Engineering News Record. v.111, no.10. September 7, 1933. p.279-280. Dam structure and prior history. Flood runoff and discharge. Flood damage and future flood possibilities.

Description of field and laboratory methods. By R.R.Proctor. Engineering News Record. v.111, no.10. September 7, 1933. p.286-289. Second of four articles on design and construction of rolled-earth dams. Air-void and dry-weight curves. Soil plasticity needle determinations of moisture content and compaction. General field and laboratory methods.

Power dam raised 30 feet under full head. Engineering News Record. v.111, no.7. August 17, 1933. p.185-188. Old crest cut down without taking power plant out of service. Extended concrete cutoff wall built from top down to depth of 110 feet. Hinged steel flashboards installed.

Drainage.

Improved internal drainage for hydraulic-fill dams. By E. McD. Moore. Engineering News Record. v.111, no.8. August 24, 1933. p.224-225. Modification of current methods of constructing hydraulic-fill and semi-hydraulic-fill dams proposed in order to improve internal drainage by creating definite channels of permeable material.

Electric Service, Rural.

Cost of bringing electric service to the farm. By Ralph T. Watter. Electricity on the Farm. v.6, no.9. September, 1933. p.9-10.

Rural lines now serve more than 700,000 farms. Electrical World. v.102, no.10. September 2, 1933. p.296. Increase of 293 per cent in eight years in number of farms receiving electric light and power service from private utility companies is indicated in report just issued by Rural Electric Service Committee of late National Electric Light Association. As of April 30, 1932, latest figures assembled, utility farm customers totaled 702,963.

Electricity on the Farm.

Electricity in horticulture. By F.H.Clough. Electrical Review. v.112, no.2899. June 16, 1933. p.861. Electric power used in irrigation to operate pumps, for supply of mechanical power, for heat and light and in manufacture of fertilizers.

Engines.

Lightweight diesel engine runs truck at low cost. Popular Mechanics. v.60, no.1. July, 1933. p.17. Production of air-cooled, lightweight diesel engine for use in trucks has been announced by Krupp manufacturing interests in Germany. Weight is approximately fourteen pounds per horsepower in fifty-horsepower engine. Operation costs in two-ton truck are said to be about three-fifths of cent per mile. Exceptional power, smokeless combustion and quiet operation are features. Compression ignition is used, but special starter also is furnished. Four cylinders are provided with cooling ribs.

Erosion Control.

Bazzling-off with sod and grass. By J. Sidney Cates. Country Gentleman. v.103, no.9. September, 1933. p.17,48.
25 million acres of formerly cultivated land has already been essentially destroyed for crop production. 100 million acres now in crops has lost all or most of its top soil. Subsoil farming is bankrupt farming on bankrupt land. 125 million acres of land now in crops is rapidly approaching time when all surface soil will be gone.

Erosion Control (Cont'd.)

Beach-erosion studies by Federal Board. Engineering News Record. v.111,no.10. September 7, 1933. p.281-283. Beach profile and sand size. Currents and waves. Sand movement. Sand movement at inlets. Beach protection by grains.

Conservation of soil and water in Texas. By A.D.Jackson. Acco. Press. v.11,no.8. August, 1933. p.9-12. Farmers have learned that they need to save water where it falls on their farm lands, and they have learned that proper terracing and laying out of rows not only holds some of water on land to make crops but helps to hold it off lower lands and prevent drowning out of valuable crops. In second place, farmers have become convinced that anchoring their soil and fertilizers with level rows and terraces tends to prevent sheet washing and gulley washing on their farms, and enables fertilizers to do their full share toward crop production.

Field observation of soil erosion index variants. By J.T. Copeland. Agricultural Engineering. v.14,no.8. August, 1933. p.206. "Soil Erosion Index" as evolved in Mississippi, refers to correlation between (1) absolute terrace location; (2) reciprocal grade, and (3) natural drainage direction, coincident with respective erosion planes characteristic of given soil. Field observation of reaction of these many variables and their response to soil erosion index method of determining terrace location, grade and direction results in conclusion that; 1. Soil components, rather than per cent of slope or soil type, influence intervals of erosion. 2. Soil of given slope, under uniform cultural practices, may change erosion interval on that slope either in factors or by multiples of factors. 3. Soil formerly with uniform erosion interval may change in response to cultural practices either in multiples or by factors. 4. Principles underlying erosion index practices change with constant physical variants of soil, and accuracy with which erosion indices are interpreted and followed facilitates precision with which resultant terrace location, grade, and direction coincide with erosion planes or bolts peculiar to particular soil.

From out the soil. By Joseph Gladden Hutton. National Waltonian v.1, no.1. July, 1933. p.4,15. Appeal for conservation of soil

Keep runaway farms safe at home. Wisconsin Agriculturist and Farmer. v.60, no. 15. July 22, 1933. p.5.

Terracing for soil erosion control. By H.B.Roe. 1933, 1p. University of Minnesota. Agricultural Extension division. Agricultural Engineering News Letter.

Farm Machinery and Equipment.

Corn belt combine makes debut. Implement and Tractor Trade Journ l. v.47, no.16. August 12, 1933. p.10-14. Runs on rubber and harvests at five miles an hour.

Finishing of agricultural implements. Sheet Metal Industries. v.7, no.75. July, 1933. p.177-178. Necessity of careful choice of finishing materials; object of painting is protection of metal and wood, good weather - resisting properties, and bright, colorful appearance; rust removal and prevention.

Fletcher analyzes power wheat farming. Farm Implement News. v.54, no.17. August 17, 1933. p.16-17. Farm mechanization has not only place production of wheat on one of highest planes of efficiency known in manufacture of any product, but it has reduced work of women and children in field; it has made lighter labor of every worker, it has abolished fear of food scarcity and has claimed for farm life measure of leisure which it so richly deserves and can so effectively utilize.

Guide on tractor helps in drilling grain. Popular Mechanics. v.60, no.1. July, 1933. p.159. Clamped to front axle of his tractor, one farmer made guide or marker to overcome difficulty experiences in steering tractor so that grain drill would not overlap land previously covered. Guide was made by riveting two vertical pieces of heavy angle iron to horizontal piece of same material, length of which is same as that of drill. Chains, long enough to drag on ground, were then attached to ends of horizontal piece. Tractor is steered so that lower end of one chain drags along in previous drill mark.

Handy hints for the implement repair shop. By N.A.Sharp. Northwest Farm Equipment Journal. v.47, no.8. August 1933. p.20-22. Drilling and countersinking. Chiseling. Punching. Filing. Riveting. Lubrication. Oil hole cleaner. Removing and placing bushings. Removing pulleys and sprockets. Removing gears. Removing sections.

Methods of field plot investigations with cotton production machinery. By John T. Randolph. Agricultural Engineering. v.14, no.8. August, 1933. p.210-212. Objects of field studies are to determine effects of tillage machine operations on growth of cotton plant, to find most economical methods of utilizing this machinery, and to furnish basis for development of needed equipment. These investigations are supplemented by special field tests and by laboratory and greenhouse studies of soil dynamics and tilth.

Farm Machinery and Equipment.

New and better machinery. By M. Glen Kirkpatrick. Farm Journal. v.57, no.9. September, 1933. p.8,15. Sums up report of study of quality values of farm machines.

Procedure for making draft tests of plows, directions for making square yard harvests of legumes, and description and use of soil sampling tube. 1933. 17p, mimeographed. U.S.Bureau of Agricultural Engineering, in cooperation with Ohio Agricultural Experiment Station.

Proposed code for implement industry. Farm Implement News. v.54, no.18. August 31, 1933. p.8-9. Complete text of code submitted to National Recovery Administration by National Association of Farm Equipment Manufacture.

Steam-hot cotton drier provides quick drying in the cotton gin. By Allen P. Cjild. v.51, no.9. August-September, 1933. p.40-44. Experimental plant demonstrated practicability of handling wet cotton.

Farmhouses.

Farm home of the future. By Ola Powell Malcolm. 1933. 9p. mimeographed. U.S. Department of Agriculture. Extension Service circular no.190.

Fences.

Fit fence to its job. By F.A.Lyman. Successful Farming. v.30, no.7. September, 1933. p.9,47.

Fertilizer Spreaders.

How manure spreaders earn their keep. Implement Record. v.30, no.9. September, 1933. p.9.

Fertilizers.

Fertilizers and manure for corn. By C.A.Mooers. 1933. 15p. Tennessee. Agricultural Experiment station. Bulletin no.149.

Fire Protection.

Proceeding of first annual fire service extension school. 1931. 103p. West Virginia. Engineering Experiment station. Extension bulletin no.9.

Floods and Flood Control.

New plans for the Mississippi: Recent investigations of bank revetment. Engineering News Record. v.111, no.6. August 10, 1933. p.166-169. Report of underwater survey of existing revetment. Submerged grains inadequate. Hot-mix asphalt mats laid successfully. Riprap revetments tests indicate practicability of certain types.

New plans for the Mississippi: Editorial. Engineering News Record. v.111, no.7. August 17, 1933. p.207.

Taming Ol' man river. Popular Mechanics. v.59, no.6. June, 1933. p.899-901. U.S. Waterways Experiment station, devoted entirely to study of rivers and harbors, works out in minature, on small-scale models, practical methods for improving their rivers and harbors.

The Yellow river - major flood menace in China. By Arthur M. Shaw. Engineering News Record. v.111, no.9. August 31, 1933. p.261-265. Present flood serves to emphasize river's constant menace to wide areas in densely populated alluvial plain. Control works inadequate. Record of 2,000 years shows many changes in river channel.

Flow of Water and Gases.

Formula for wave velocity in open channels verified. By LeRoy K. Sherman. Civil Engineering. c.3, no.8. August, 1933. p.473.

Forage Drying.

Portable alfalfa dehydrating plant. Agricultural Engineering. v.14, no.8. August, 1933. p.212. Plant built by Heil Company, Milwaukee. New-mown alfalfa is dumped on receiving platform from which it is fed into chopping machine. From there it is conveyed up and dumped into rotary receiving hopper where it is automatically discharged into dryer. Dryer is composed of three concentric drums. Alfalfa and hot air are sucked through these three drums. Total actual travel of alfalfa, as it moves forward through small drum, then back through intermediary drum, and forward again through outside drum, is approximately 60 feet. Suction fan blows dried alfalfa up into collector where it is discharged into hammer mill. From here alfalfa is blown up into second collector and put into bags. Two Waukesha motors furnish power. 55-hp. engine operates rotating drum, suction fan, compressor for supplying air to oil burner nozzles, and for feed conveyor, 100-hp engine operates hammer mill.

Frost Protection.

Wind "gun" protects orchard by blowing away frost. Popular Mechanics v.59, no.6. June, 1933. p.913. Motor-driven propeller forces air through metal guide and down on orchard like gun fires bullet. As wind "gun" turns slowly, air is kept in circulation, preventing frost from forming. Each machine is mounted on tower seven feet above ground so it does not interfere with cultivation, irrigation or other work.

Fuels.

Alcohol as motor fuel. Oil, Paint and Drug Reporter. v.124, no.4. July 24, 1933. p.28. Continued from July 17 issue.

Alcohol blending of gasoline. Power Plant Engineering. v.37, no.9. September, 1933. p.892. No Material difference in fuel economy in use of plain gasoline and of gasoline-alcohol blends in motor trucks operating on belt or in field and in motor trucks running on paved highways was disclosed in recent tests, reported American Society of Agricultural Engineers.

Alcohol-gasoline blend unsatisfactory as motor fuel. By Ernest N. Smith. 1933. 5p. American Automobile Association, Washington, D.C.

Certain technical aspects of motor fuels. By Jacque C. Morrell. Agricultural Engineering. v.14, no.8. August, 1933. p.220-222.

Farm-product alcohol as motor fuel. Oil, Paint and Drug Reporter. v.124, no.3. July 17, 1933. p.38,40. Michigan University professor of chemical engineering discusses various phases of proposal.

Farm product alcohol as motor fuel. Oil, Paint and Drug Reporter. v.124, no.5. July 31, 1933. p.36,38. Continued from July 24 issue.

Method of determining values of different fuels for power plant use. By H.M.Faust. 1933. 8p. Ohio. Engineering Experiment station. Circular no.28.

Motor fuel from surplus grain. Grain and Feed Journals. v.71, no.1. July 12, 1933. p.34.

Power handbook on fuels. By Guy Hankin. New York, McGraw-Hill publication, c1931. 136p.

Fuels. (Cont'd.)

"Oiled" gasoline aids power and cuts fuel cost. Popular Mechanics. v.59, no.6. June, 1933. p.848. "Oiled" gasoline, containing minute amount of lubricating oil has been found to step up motor power and decrease fuel costs in automobile tests over 10,000,000 miles of roads. Results of road trials; gains of from four to eight per cent in gasoline mileage, increases in crank-case oil mileage up to 100 per cent, and reduced carbon formation. Gasoline thus treated also prevented freezing of piston rings and sticky valves, made for less valve grinding and lowered the "run-in" time on engines after overhauling.

Shall we grow motor fuel? By Ben Hibbs. Country Gentleman. v.103, no.9. September, 1933. p.3-5,47.

Gas Producers.

Untersuchungen an Holzgaserzeugern. By G. Kühne, H. Fischer and F. Koch. Pt.2. Technik in der Landwirtschaft. v.14, no.1. January, 1933. p.6-8. Experiments with produce gas generators using wood. Includes tests on loaded truck using first liquid fuel and then producer gas. Producer gas affected saving.

Greenhouses.

Magic-ray farmers. Popular Mechanics. v.60, no.1. July, 1933. p.58-61,120A, 124A. In electrically operated hot-house on roof of General Electric research laboratory at Schenectady, scientific "farmers" are subjecting seeds, plants, bulbs and flowers to energy of X-rays in effort to change hereditary characteristics of plants and animals, to make and control variations, and thus to create new species at will.

Hay.

Studies on changes in vitamin content of alfalfa hay. By Earl Douglass, J.W.Tobiska and C.E.Vail. 1933. 68p. Colorado. Agricultural Experiment station. Technical bulletin no.4.

Heat Transmission.

Heat transfer. By R.L.Steel. Refrigeration, Cold Storage and Air Conditioning. v.4, no.3. June 30, 1933. p.17-21.

Heat transmission through building materials. By Frank B. Rowley and Axel B. Algren. 1932. 106p. Minnesota. Engineering Experiment station. Bulletin no.8.

Heating.

80 degree walls and 60 degree air increases comfort. By L.W. Schad. Aerologist. v.9, no.8. August, 1933. p.5-8,18. Body loses 400 B.t.u. per hour. 80 degree walls stop radiation losses. Embedded wires heat walls of test room. Air changed eight times per hour. Heating requirements can be computed. "Comfort index" explained. Temperature uniform to 1 degree F. Cool air avoids humidity worries. Power requirements. Reversed refrigeration offers promise. Conclusions based on tests.

How much does water heating cost? By A. Harrison Saunders. Fuel Oil. v.12, no.3. September, 1933. p.65.

Need better results in small boilers. By Arthur H. Sonner. Fuel Oil. v.12, no.3. September, 1933. p.11.

Radiated heat desirable; Editorial. Electrical World. v.102, no.7. August 12, 1933. p.203. Recognition is being given slowly to radiation component in connection with space heating; particularly where air conditioning is contemplated is this recognition desirable. In England they went so far some time ago as to employ wallpaper with embedded filaments heated to low temperatures by electrical means. Intent in space heating for human comfort is primarily to maintain thermal regime which will allow body to dissipate its surplus heat at not much more or less than normal rate. That is what makes for comfort, not just heating or cooling room air so as to supply heat to or extract heat from body by conduction. Contrary to common belief fostered by Stefan-Boltzman fourth-power law for radiation and temperature, low temperature radiation does account for large part of dissipation from human body. L.W.Chubb, director of Westinghouse research, recently told Springfield audience that it accounts for forty-four per cent of 400 B.t.u. per hour released by adult to keep his temperature normal.

Room heated by wall paper applied on ceiling. Popular Mechanics. v.59, no.6. June, 1933. p.894. Heating elements are formed by copper and nickel alloy imbedded in sheet of reinforced, damp-resisting fabric, which provides insulation. These sheets are supplied in rolls that can be cut into required lengths and applied to ceiling plaster like wall paper. Lining paper then is placed over sheets, with calcimine, paint or other decorative materials over all. Flexible connecting tails are attached at convenient points. Rheostat control gives even temperatures at minimum current consumption.

Temperature and humidity control in heating. By E.V.Hill. Aerologist. v.9, no.8. August, 1933. p.15-17.

Hitches.

Indiana big team hitches. By P.T.Brown. 1933. 8p. Purdue University. Extension Service. Extension bulletin no.196.

Hotbeds.

"Over" heat seed beds produce sturdy tomato plants. Electrical World. v.102, no.5. July 29, 1933. p.157-158. Three types of bed were tested at Oklahoma Agricultural and Mechanical College, and one in which heat was supplied above ground in consuming 112 kw.-hr. turned out slightly better plants. Sixty feet of hotbed cable was stapled to 1-in. framing just above soil. Second bed had 60 ft. of cable buried in soil; this one consumed 97 kw.-hr. Both were thermostatically controlled to an average temperature of 73 to 79 deg.F. in air and soil, with average outside temperature of 64 deg. F. Third bed consumed 114 kw.-hr., was manually operated, and was heated by 480-watt "Nichrome" soil in air space below false board bottom.

Houses.

Better housing association formed. Domestic Commerce. v.12,no.6. August 30, 1933. p.64. National Association for Better Housing. Purpose of new association is "to bring together for conference, study and common action all those persons, businesses, trades and professions interested in bringing about better housing, sounder community planning and more extensive home ownership". Among specific activities which association proposes to undertake are working out of methods to aid in development of less costly and cumbersome financing procedure, supporting practical methods of rehabilitating blighted districts and obsolete structures, research on problems of land utilization, housing and home ownership, and acting as clearing house for information on housing and home building. Headquarters of association are at 59 East Van Buren street, Chicago.

Cozy home for $700. Popular Mechanics. v.60, no.1. July, 1933. p.146-153.

Experimental house. By Harold Donaldson Eberlein. Architectural Forum. v.58, no.6. June, 1933. p.480-484.

Glass home of tomorrow. Popular Mechanics. v.59, no.6. June, 1933. p.817-819. There is not square or rectangular room, there are no supporting walls, there is no basement, there are no windows in ordinary sense, living rooms are not on ground floor, there are no closets and usual electric-light brackets are missing. Structurally, house consists of central mast of steel anchored to concrete slab which forms floor of first story. At height of second and third stories, steel girders radiate from this central mast like spokes of wheel, and these cantilever girders support floor and roof. House is twelve-sided, virtually circular, and outer walls are of glass set in metal frames hung from these girders, so walls support no weight.

Houses. (Cont'd.)

Frame is exposed, forming part of decoration, and heating ducts also are used for ornamentation. Movable wardrobes, easily cleaned, replace closets, walls serve to admit light by day, indirect lighting is provided at night, and heating, cooling and ventilating are controlled by central-unit and air-conditioning system, and roofs are terraces to be lived on and enjoyed. Center mast carries heating and ventilating ducts, wiring, water and sewer pipes, and around it spiral staircase winds to roof. Interior partitions are of carrara glass and floors are of gypsum composition covered with blocks of wood.

Hugh home shortage developing. Brick and Clay Record. v.83,no.2. August, 1933. p.57-58,64. Statistics show country will be 1,500,000 homes short of normal requirements at end of 1933.

Low-cost house being planned for millions of wage earners. Building Material Digest. v.2, no.8. August, 1933. p.18-19. Plan for complete revolution of housing problem of two-thirds of population of United States is rapidly taking form at Massachusetts Institute of Technology, and is expected to be ready for presentation in all details by next autumn, under direction of Prof. Ross F. Tucker, head of department of building engineering and construction,

New mode in living. By William W. Stevens. Domestic Engineering. v.142, no.2. August, 1933. p.33-35. Heating for comfort, bathrooms built for convenience and houses of new design give modern environment for home life.

Insect Control.

How farm machinery can aid in controlling insect pests. By Dr. E.O. Essig. Implement Record. v.30, no.9. September, 1933. p.12-13. Apart from special sprayers, dusters and fumigating devices, students of pest control are finding that much - in fact, most - can be accomplished through ordinary farm practices, depending on how well, how thoroughly and how promptly or quickly they are done. This article offers sales material of great value to implement and tractor trade. For difference between clean crops and disease, is difference between timeliness and delay in field operations, or between real job and makeshift in plowing, cultivating, and harvesting and removal from field.

Insulation.

Corrugated paperboard as an insulating material. By M.M.Murphy,jr. W.T.Ziegler, and J.G.Woodrof. Ice and Cold Storage. v.36, no.424. July, 1933. p.119-120.

Insulation (Cont'd.)

Corrugated paperboard as an insulating material. By. H.M.Murphy, jr. W.T.Ziegler and J.G.Woodrof. Ice and Cold Storage. v.36, no.425. August, 1933. p.136-137. Summary: (1) Relative insulating values per unit thickness of single-face chestnutboard, double-face and double-wall jute, kraft, and chipboards were practically same. (2) Paperboard shipping containers did not prevent thawing of product, except in shipments of short duration (less than twelve hours) without use of refrigerant. (3) Convection, if present, in corrugations of paperboard had no effect on thawing of product. (4) Accumulation of moisture in walls of container during consecutive runs caused increase in thawing of product, but had no apparent effect on rate of sublimation of solid carbon dioxide. (5) Treating outside surface of containers with various substances retarded penetration of vapour, retarded absorption of moisture, reduced rate of thawing of product, and reduced consumption of refrigerant. (6) Treating inside surface with paraffin prevented absorption of moisture from within container. (7) Insulating value was not increased by treating any face or portion of container other than outside and inside surface. (8) Cotton felt unit lined container required less refrigerant and had less thawing of product than two-liner kraft. (9) For dispatching solid carbon dioxide, difference in losses in cotton wadding and chipboard lined containers was less than eight-tenths pounds.

Insulation to reflect heat in cooling refrigerator. Popular Mechanics. v.59, no.6. June, 1933. p.841. Thousands of small air pockets in the insulation material bar passage of heat that is not reflected by surface. Material is made of corrugated fiber by inexpensive process.

Selection of building insulation. By Theo. F. Rockwell. Architectural Record. v.74, no.1. July, 1933. p.65-71. Object of paper is to present some suggestions for design of walls and ceilings in order that space which they inclose may be more economically heated without unduly increasing first cost of structure. Examples discussed are limited to average small frame houses. Methods of analysis may be applied to any type of building. Pt.1: Economy of reducing heat losses.

Value of efficient insulation for cold rooms. Refrigeration, Cold Storage and Air Conditioning. v.4, no.3. June 30, 1933. p.13,12. Thickness and costs, testing doors.

What insulation means to the farmer. Building Material Digest. v.2, no.8. August, 1933. p.10-11.

Irrigation.

Beet profits depend on irrigation. By G.H.Dingham. Montana Farmer. v.20, no.22. July 15, 1933. p.3,11. Moderate irrigations applied at frequent intervals seem best for sugar beet growing.

Canvas hose system of irrigation. By George Arundson. Agricultural Engineering. v.14, no.8. August, 1933. p.207-209. Table 1. Results of 1931 canvas hose irrigation experiment. Table 2. Results of 1932 canvas hose irrigation experiment. Table 3. Estimated cost of irrigating with canvas hose.

Effects of plant spacing and irrigation on number of locks in cotton bolls. By A.R.Loding and L.R.Lytton. Journal of Agricultural Research. v.47, no.1. July 1, 1933. p.33-52.

Efficiency of overhead irrigation. By Orten H. Englehart. California Cultivator. v.80, no.16. July 8, 1933. p.334-335.

Floating irrigation plant for Egypt. Engineer. v.156, no.4047. August 4, 1933. p.118-119. Details of one of three sets for irrigation purposes in regions lying south of Aswan Dam; scheme built by W.H.Allen, sons and co; barges constructed in Egypt; in each there are two oil-engine-driven pumping units with complete accessories; two main engines in each barge, of Allen vertical airless-injection 3-cycle type with cylinder bore of 230 mm and stroke of 300 mm.

Irrigation - and the new deal: Editorial. Montana Farmer. v.20, no.24. August 15, 1933. p.4. Recent approval of extensive irrigation projects, under public works appropriation, indicates that this exchange of good land for bad under new land policy is going to be followed up aggresively. Plan itself, of course, is not new but significant thing is that new administration has taken it from dim realm of theory and started it on its way to practical accomplishment. Irrigation and other forms of land reclamation are being lifted in public mind from level of mere community selfishness to high plane of social progress and human welfare.

Irrigation in lower Rio Grande valley of Texas. By D.J.Foscue. Geographical Review. v.23, no.3. July, 1933. p.457-463. Non-technical review of recent developments, with special reference to its international aspects; statistical data.

Irrigation system of Mayas to be restored. Popular Mechanics. v.60, no.1. July, 1933. p.16. Constructed hundreds of years ago by Mayan engineers of ancient Mayas, storage and irrigation systems in Yucatan area will be restored and put back into service by Mexican government. Intricate network of underground canals is said to be superior to that of ancient Egyptians. Reservoirs of system were lined by Mayan engineers with waterproofed stone and plaster, as were aqueducts, branch canals and drainage channels. Thus, enough water was stored during rainy season for use during rest of year.

Irrigation (Cont'd)

Merced irrigation district. Economic survey of farm incomes, expenses, and tax-paying abilities, February 1933. Supplemental report of farm incomes and expenses, years 1926-1927-1928. June 1933. By M. R. Benedict. Preliminary report. 1933. 133p. California. Agricultural Experiment station.

Nebraska water projects seek loan. Nebraska Farmer. v.75,no.16. p.14-B. Seventy million dollars allotted to Nebraska. These six projects include Frenchman River reservoir in southwest Nebraska, Middle Loup Public Power and Irrigation District, North Loup Valley Hydro-electric and Irrigation project, Platte river Public Power and Irrigation District, known as the Sutherland project, Central Nebraska Public Power and Irrigation district, referred to as Tri-county project, and Loup River Public Power district at Columbus. From 70 to 80 million dollars has been allotted to Nebraska in Public Works Act and it is from this source that several projects above hope to obtain loans for building of canals, dams, etc.

Sewage irrigation in south Jersey. By Dr. Jacob G. Lipman. New Jersey Farm and Garden. v.4, no.8. August, 1933. p.11.

Land*

New Irrigable lands thrown open to entry. Idaho Farmer. v.51, no.14. June 15, 1933. Approximately 5000 acres of new lands under Big Wood Canal company system in American Falls reservoir district no.2, in Lincoln, Gooding and Blaine counties. Acreage comprises 68 units, ranging from one tract of 33 acres to one tract of 116 acres, most of others ranging from 60 to 90 acres. Water comes from American Falls reservoir through big Milner-Shoshone-Gooding canal, which was finished last year at cost of $6,581,000.

Lubrication.

Designing enclosed gear drives for successful lubrication. By Austin Kuhns. Machinery. v.40, no.1. September, 1933. p.33-36. Type of lubricating system used influences selection of lubricant. Splash system of lubrication. Pressure system of lubrication. General considerations in efficient lubrication.

Knowledge and care needed for effective lubrication of prime movers. By A.F.Brewer. Southern Power Journal. v.51, no.9. August-September, 1933. p.33-34.

Lubrication. (Cont'd.)

Laboratory methods of comparing lubricating values of automotive oils. By H. H. Langdon. Washington. Engineering Experiment Station. Monthly bulletin. v.15, no.2. July, 1932. 31p. Oils tested were those in direct competition throughout most of United States and representative of many other oils sold; in automobile, laboratory, and field operation of automotive engines used in tests, average of 54 per cent greater wear of working parts took place with typical asphalt-base than with typical paraffin-base oils.

Relative lubricating values of automotive oils. By Howard H. Langdon. 1932. 15p. Washington. Engineering Experiment station. Engineering bulletin no.41.

Miscellaneous.

Coast and Geodetic Survey work under National Recovery act. By Captain R.S.Patton. Engineering News Record. v.111, no.10. September 7, 1933. p.293. Funds allotted by Public Works Board make it possible for Survey to continue needed control lines and to bring old coast charts up to date.

Code for engineers in tentative form drafted in New York. Engineering News Record. v.111, no.6. August 10, 1933. p.180.

Color. By R.C.Hitchcock. Electric Journal. v.30, no.8. August, 1933. p.340-343. Color is one of most apparent phenomena and yet average person knows very little about it. Presented here are facts regarding color which are interesting and at same time give background for subject of prime importance to industry - color matching.

Control of stem rot of rice by burning stubble. By E.C.Tullis, J.B. Woods and Dean G. Carter. Agricultural Engineering. v.14, no.8. August, 1933. p.218-219. Conclusions: 1. In these experiments burning stubble and straw on surface of soil did not completely destroy all sclerotia of rice stem rot fungus in soil. 2. Investigations have shown that fungus produce conidial and ascigerous stages, which also may produce infection, and that conidia may be produced in abundance from relatively few sclerotia not killed by burning. 3. Burning straw and stubble on fields kills numerous sclerotia, and therefore appears to be desirable practice for control of stem rot when used in conjunction with other recommended measures.

Geodetic operations in the United States January 1, 1930, to December 31, 1932. By William Bowie. Washington, U.S. Government Printing Office, 1933. 25p. U.S. Coast and Geodetic Survey. Special publication no. 178.

Harvesting and packing apples, peaches, and pears. By G.W.Pock. 1933. 32p. Cornell University. Extension service. Bulletin no.257.

Miscellaneous (Cont'd)

List of state official serial publication containing material on agricultural economics. Compiled by Esther M. Colvin. 1932. 222p. Mimeographed. U.S. Bureau of Agricultural Economics. Agricultural Economics bibliography no.38.

Machinery and Allied Products Institute. Machinery. v.40, no.1. September, 1933. p.37-38. Aims and purposes of new federation of trade associations that will act as sponser for machinery industries.

Measure for measure. By Burton Ashford Rugbee. Pencil Points. v.14, no.7 July 1933. p.301-303. Alterations require accurate information.

More recent trends in engineering education and research. By A.A. Potter. Agricultural Engineering. v.14, no.8. August, 1933. p.213-216.

Perspective drawing simplified. By L.J. Smith. Agricultural Engineering. v.14, no.8. August, 1933. p.209. Developing set of perspective scales. Scale was developed for measuring distances along side or front, and one for measuring along end of object or building at ground line. With these scales it became possible using standard set of vanishing points, and corresponding architectural scale for vertical distances, to quickly draw in side and end of object directly in perspective without resorting to projection.

Power's maintenance manual. New York, McGraw-Hill publication, c1932. 270p.

Practical problems in mathematics. Domestic Engineering, v.142, no.2 August, 1933. p.39-40,50-52. Degrees, minutes, seconds, slope.

Reconditioning furniture. By Florence E. Wright. 1933. 40p. Cornell University. Extension Service. Extension bulletin no.256.

Text of code for engineers in construction industry. Engineering News Record. v.111, no.10. September 7, 1933. p.290-293. Executive committee of American Society of Civil Engineers approves code for submission to National Recovery Administration as a supplemental code under master code for construction industry.

Muscle Shoals.

Tennessee river closed to private development. Electrical World. v.102, no.8. August 19, 1933. p.226-227. Board's view is that it alone should be charged with all development on river and its tributaries. Tennessee Valley Authority board of directors has allocated specific duties to its three members. Chairman Arthur E. Morgan will supervise all matters concerned with Norris Dam, reservoir and town of Cove Creek, in addition to numerous other features of development. Dr. Harcourt A. Morgan has been placed in charge of all matters relating to agriculture. David E. Lilienthal will look after distribution of power, land appraisals, operation of generating plants at Muscle Shoals, construction and operation of transmission lines and accounting work.

Painting.

Good paint job is important. Wisconsin Agriculturist and Farmer. v.60, no.15. July 22, 1933. p.3,11. Research shows as much as 10 months difference in favor of durability of paint on exposed surfaces in Wisconsin compared with same in Arizona. Therefore, good paint used in Wisconsin, if abnormal construction defects are watched for, has effective advantage in lasting quality over some other climatic regions.

Poultry Houses and Equipment.

Choose your poultry house. By V.S.Peterson and R.L.Patty. Successful Farming. v.30, no.7. September, 1933. p.14-15.

From barn to henhouse. By D.D.Montgomery. American Agriculturist. v.130, no.16. August 5, 1933. p.11. Remodeling old dairy barn into poultry house.

Sunlamps in poultry house increase egg yield. Popular Mechanics. v.59, no.6. June, 1933. p.907. In recent test, it was found that hens getting ultraviolet light are healthier, lay more, and their eggs are more likely to hatch than those of birds not subjected to stimulus. Twelve per cent more eggs of sixteen per cent greater fertility were produced by 450 hens under sunlamps than by 450 birds placed under ordinary lights. Irradiated hens also were found more resistant to disease, mortality being five per cent lower. Sunlamps are automatically controlled.

Power.

Labor-saving on the farm. Farm Implement News. v.54, no.17. August 17, 1933. How man-hours have been reduced by use of power and machinery.

Power (Cont'd.)

More tractor hours means lower costs. Implement Record. v.30, no.9. September, 1933. p.8-9. Agricultural College studies show importance of maximum use to bring hourly expense to minimum.

Vast power still untapped in Tennessee River basin. Popular Mechanics. v.60, no.1. July, 1933. p.62. Less than twenty per cent of water-power resources of Tennessee river basin has been developed, although forty-six plants producing 876,000 horsepower are in operation. Total water-power resources of basin are about 3,000,000 horse-power available fifty per cent of time, or about 2,500,000 horsepower available ninety per cent of time, On basis of present practice in installation of water wheels, about 5,000,000 horsepower of water wheels would be required in development of all basin's resources. Of water power now generated in basin, 700,000 horsepower is used to drive generators of public-utility plants and about 175,000 horsepower is used by manufacturing plants, many of which generate electric power for their own use.

Water power study by federal body launched by N.R.A. Engineering News Record. v.111, no.6. August 10, 1933. p.180. Comprehensive national plan for development of water power and transmission of electricity is regarded as major step towards establishing public ownership and operation on firm footing throughout country.

Public Works.

Clear and concise statement on the Public Works program. By Harold L. Ickes. Municipal Sanitation. v.4, no.8. August, 1933. p.263-264.

District administrators and state advisor named. Municipal Sanitation. v.4, no.8. August, 1933. p.264. Appointments announced by Harold L. Ickes, Secretary of the Interior.

New appointments made to Public Works organization. Engineering News Record. v.111, no.6. August 10, 1933. p.181.

P.W.A. lists information required with loan applications. Engineering News Record. v.111, no.6. August 10, 1933. p.182. Information required relates to project itself, finances and legal considerations.

Power and irrigation work finances by PWA. Engineering News Record. v,111, no.9. August 31, 1933. p.251-253. Casper-Alcova irrigation project and Seminoe storage reservoir and power plant to be built with funds provided by the Public Works Administration under the Recovery Act.

Public Works. (Cont'd.)

Public works program is moving forward. Engineering News Record. v.111, no.9. August 31, 1933. p.265-267. Organization for handling municipal projects is complete and functioning. Maximum decentralization to be maintained. Inspection separated from approval. Labor, wage and contract questions.

Public works provided by Industrial Recovery Act. Architectural Record. v.74, no.1. July, 1933. p.3-8.

State engineers for public works announced by Secretary Ickes. Engineering News Record. v.111, no.7. August 17, 1933. p.208-210.

$3,300,000,000 for public works. By G. Kendrick Bringhurst. Domestic Engineering. v.142, no.2. August, 1933. p.30-32, 48. What government jobs require.

Refrigeration.

Cooling by humidity control saves produce shipments. Popular Mechanics. v.59, no.6. June, 1933. p.853. This method of refrigeration is said to prevent frozen or chilled products from "sweating" when they are removed from refrigerator. New system controls humidity so that it is equal to or less than humidity of surroundings to which produce goes.

Latent heat of foodstuffs. By W.R.Woolrich. Ice and Cold Storage. v.36, no.424. July, 1933. p.113-114,122. Industrial application of latent heat values. Table 1. Experimentally determined latent heats of fusion of foodstuffs. Table 2. Computed latent heats for foodstuffs not appearing in Table 1.

New tables of refrigerant gases. By J.P.Churchill. Refrigerating Engineering. v.26, no.2. August, 1933. p.85-87. Properties of certain media of high boiling point.

Size of suction mains for various refrigerants. By J.O.Schultz. Ice and Refrigeration. v.85, no.1. July, 1933. p.9-13. Second set of tables for the five common refrigerants now in use will eliminate long, tedious calculations in selection of proper size suction mains for use with large or small refrigerating plants. Examples.

Reservoirs.

Water reservoir for desert lessens evaporation. Popular Mechanics. v.59, no.6. June, 1933. p.879. Circular containers are divided into sections.

Screening.

Screening and mosquito proofing of houses. By George E. Riley. 1933. 16p. Mississippi. State board of Health. Division of Malaria Control. Bulletin no.4.

Septic Tanks.

Septic tank and how it works. By W.K. McPheters. New England Homestead. v.106, no.14. July 8, 1933. p.3.
Properly constructed sewage system safeguards home water supply. Cross-section of septic tank showing distribution.

Sewage and Sewage Disposal.

Farm plumbing. By George M. Warren. Rev., 1933. 22p.
U.S. Department of Agriculture. Farmers' bulletin no.1426.

Silos.

Interest in silos is looking up. By H.J.Gramlich. Successful Farming. v.30, no.7. September, 1933. p.7,37.

Silo fillers needed this year. Implement and Tractor Trade Journal. v.47, no.17. August 26, 1933. p.6-7,14.
Serious lack of roughage looms as result of hot weather and drouth, making silage essential to supplement short crops of hay and other rough feeds.

Trench silo boon to farmers. By T.C.Richardson. Farm and Ranch. v.52, no.11. June 1, 1933. p.3,7.

Soils.

Correcting the unproductiveness of acid and alkaline muck soils for the growing of vegetable crops. By G.M.Tait and J.E.Knott. 1933. 19p. Cornell University. Agricultural Experiment station. Bulletin no.572.

Fundamental principles of soil compaction. By R.R.Proctor. Engineering News Record. v.111, no.9. August 31, 1933. p.245-248. Describes application to design and construction of rolled-earth dams of recently developed methods for controlling compaction of soils. Under new procedure series of simple laboratory and field tests determines suitability of available soils, supplies essential data for design of dam, serves as basis for control of constructiveness of work as it proceeds. Methods are described for compacting soils so that they will be sufficiently watertight and will not become soft and unstable if completely saturated with water. Basic principles of control of soil compaction that are described apply to all types of earthfills and to foundation design as well as to earth dams.

Soils. (Cont'd.)

New test for soil acidity. By Dr. E.N.Dressman. Electricity on the Farm. v.6, no.9. September, 1933. p.8. One of newer tests for soil acidity is known as potassium thiocyanate test. This chemical is used in 4 per cent solution of alcohol, and when small amount of soil is added to solution, it will either remain colorless or turn red. If the potassium thiocyanate solution turns red soil is acid, and greater degree of color, more acidity. If, on the other hand, solution remains colorless soil is sweet. Of greatest importance in determining acidity of field is taking of soil sample. Many growers take one or two samples from 20 or 30 acre field and hope to determine its acidity. They may get this sample from spot that is either acid or sweet and not get true representative sample of entire field. Several samples should be taken from various parts of field, most of them taken just about two or three inches below surface. It is also well to take a few samples about 10 or 12 inches beneath surface, and few from subsoil at depth of 20 to 24 inches. This type of sampling will give true cross-section of acidity of field, and grower can tell just about how much lime to add.

Porosity and water absorption of forest soils. By John T. Auten. Journal of Agricultural Research. v.46, no.11. June 1,1933. p.997-1014. Introduction. Soil porosity of old-growth forest and open field. Water absorption in old-growth forest soils. Soil porosity of grazed and ungrazed woods. Soil porosity in forest plantations and open fields. Water absorption in forest-plantation soil. Functions of forest litter. Discussion and conclusions.

Soil fertility studies. By Martin Nelson. 1933. 36p. Arkansas. Agricultural Experiment Station. Bulletin no.290.

Standardization.

Commercial standardization services of the Bureau of Standards. By Lyman J. Briggs. Industrial Standardization. v.4, no.8. August, 1933. p.123-130. Work of Divisions of Simplified Practice, Specifications, and Trade Standards, and Building Code and Safety Standards Sections.

Storage Houses and Cellars.

Home vegetable storage. By A.E.Hutchins. 1933. 4p. Minnesota. University. Agricultural Extension division. Circular no.43.

Vegetable storage. By A.G.B. Bouquet. 1933. 4p. Oregon. State Agricultural College. Extension Service. Extension bulletin no.464.

Tires.

Comparative test results of rubber tires and steel wheels for tractors. By Lloyd W. Hulbut. Agricultural Engineering. v.14, no.8. August, 1933. p.217-218. Summary of results of test: 1. For any given engine horsepower greater drawbar horsepower was obtained with rubber tires than with steel wheels and lugs. 2. With rubber tires maximum drawbar pulls in low, second, and high gear are nearly same. 3. Steel wheels and lugs had advantage in both drawbar pull and speed in low and second gear. In high gear, steel had advantage in speed up to drawbar pull of 1250 lb. Rubber tires had considerable advantage in drawbar pull with maximum pull of 2190 lb. in high gear. 4. Maximum drawbar pull for rubber tires was 2230 lb. in second gear. For steel wheels and lugs it was 3200 lb. in low gear. 5. Rubber equipment showed better fuel economy based on drawbar horsepower. High gear with rubber showed maximum fuel economy. 6. Maximum drawbar horsepower developed with rubber tires was in high gear. Maximum with steel wheels was in low gear. 7. Direction to best fuel economy with rubber tires is higher speeds with drawbar pull remaining nearly constant. Most efficient drawbar load in this test was near 1800 lb.

Effect of rubber tires on tractor design: Editorial. Implement and Machinery Review. v.59, no.699. July 1, 1933. p.236-237. It is one thing to design tire that will stand up to arduous field work, with its periodical and uncertain shock loads that demand pronounced degree of flexing of walls without injury, and quito another thing to produce tire that will run at speed on road without reaching danger point when heat will be generated and injury done. Speed for road work and traction for field work produce some elements of conflict in tire construction, and though it is quite true to maintain that higher speeds of working will certainly be reached, perhaps even in actual tillages when these are favored, it does not follow that mere fitting of rubber tire is going to allow tractor to scamper along roads with abandon or facility.

Pneumatic-tire-equipped mower. Agricultural Engineering. v.14, no.8. August,1933. p.216. Balloon tires are 5.25 x 21 size, fit over conventional automobile-type rims, and are secured by locking lugs attached to each spoke. Each wheel is provided with special split hub, which makes it easy to slip wheel on to axle shaft. After being put in place, wheel is clamped tightly around axle by four bolts through hub. Wheel is also keyed to axle. Main axle, to which wheels are solidly keyed, is made in two sections, and those are connected by differential arrangement inside gear box.

Tractors.

Cooperative tractor catalog: Illustrated directory of tractors, tractor accessories and power farming machinery. 1933. 227p. Kansas City, Mo., Implement and Tractor Trade Journal.

Relative fuel consumption of diesel and gasoline engines. By P.M.Heldt. Automotive Industries. v.69, no.6. August 5, 1933. p.159. Summary of tractor tests at University of Nebraska.

Summary of the use and costs of operation on 39 general-purpose tractors on farms in central Illinois, 1932. By P.E.Johnston. 1933. 4p. mimeographed. University of Illinois. Department of Agricultural Economics.

Trucks.

Chart determines hauling costs and number of trucks required. By R.D. Gladding. Engineering News Record. v.111, no.7. August 17, 1933. p.199.

Walls.

Electric washer for walls cleans and rinses. Popular Mechanics. v.60, no.1. July, 1933. p.73. Outfit consists of tank containing water and detergent, force pump operated by electric motor, and scrubbers. After wall has been scrubbed, same machine rinses it, water in each instance being returned to drainage tank.

Thirsty bricks prevent leaky walls. Science News Letter. v.24, no.639. July 8, 1933. p.25. To avoid leaky walls, use absorbent, "soaky" brick and make mortar joints thin. Brick should be able to absorb from 5 to 10 per cent of its weight in water in two days; and most of this absorption should take place in first ten minutes of soaking. Bricks' ability to "drink water" insures good bonding with mortar, making wall into practically one solid piece. There should be some lime in mortar to insure this action.

Waste Products.

Cornstalks of great value as by-products source. Popular Mechanics. v.59, no.6. June, 1933. p.838. In opinion of scientists of United States Bureau of Standards, one hundred million tons of pure cellulose, six million tons of sugars and large quantities of gums and lignin could be produced from three hundred million tons thrown away as farm waste. Cellulose, besides being chief constituent of paper and rayon, is used in making explosives, cellophane, photographic films, lacquers and adhexives. Farm waste, washed, cooked, and treated, may be reduced to pulp that contains ninety-five to ninety-eight per cent "alpha cellulose". Further cooking under pressure with dilute acid makes possible extraction of certain sugars that may find important use in resins, solvents and medicine.

Water Purification.

Farm wastes to purify water supply. Popular Mechanics. v.60, no.1. July, 1933. p.81. Research indicates that hulls of buckwheat, rice and other grains may be converted into "activated char", foe of odors and tastes common to surface water supplies during certain seasons.

Water Supply.

Soft water and the farm cistern. By C.L.Hamilton. 1933. 20p. North Dakota. Agricultural College. Agricultural Extension division Circular no.118.

Water resources of the Walla Walla river. Engineering News Record. v.111, no.7. August 17, 1933. p.194. Has power and storage possibilities whose development may readily conform with and promote further agricultural and industrial development in this region. Report just released by Interior Department describes four power sites and two reservoir sites on this river. Combined capacity of power sites is about 20,000 hp., and of reservoirs about 36,000 acre-feet.

Weeds.

Killing quack grass with field tiller. Farm Implement News. v.54, no.17. August 17, 1933. p.19. Drawing shows method of using field tiller for eradication of quack grass, each operation being at right angles to preceding one, and depth of tillage slightly increased with each.

Wood.

Compressed wood is strong as metal. Popular Mechanics. v.59, no.6. June, 1933. p.881. One process flattens cellular structure, forcing out air. In this form wood is used for making light pulleys that will stand up under 2,000 revolutions per minute. Another compressed wood is that produced by rolling strips of fir through heavy steel rollers. Result is wood having all characteristics of fine hardwood, capable of taking high polish. This material is finding use as flooring.

Durability of posts and results of preservative treatment. By Deane G. Carter, Harold T. Barr and John B. Woods. 1933. 16p. Arkansas. Agricultural Experiment Station. Bulletin no.287.

Service records of treated and untreated poles. By R.M.Wirka. Electrical World. v.102, no.5. July 29, 1933. p.146-149.